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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,031	06/23/2003	James Ross Fishburn	6P2-0310	1030

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CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER	
PENG, KUO LIANG	

ART UNIT	PAPER NUMBER
1712	

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/604,031	FISHBURN, JAMES ROSS	
	Examiner	Art Unit	
	Kuo-Liang Peng	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/30/03 IDS*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/30/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-18 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw (US 5 714 550) as evidenced by Krevellen ("Properties of Polymers" by Krevelen et al., Elsevier Scientific Publishing Company, (1976), pp. 523-525) and Bueche ("Physical Properties of Polymers" by Bueche, Interscience Publishers, (1970), pp. 112-116 and 295-303).

Shaw discloses a composition comprising a) a blend of a polyamide and a polyphenylene ether, b) a polysiloxane, and c) a boron compound (col. 2, lines 7-31and 53-59, col. 2, line 7 to col. 4, line 34, col. 5, line 43 to col. 7, line 5). The polyamides can be aliphatic polyamides such as polyamide 4/6, etc. (col. 3, line 57 to col. 4, line 8). A compatibilizer such as triblock copolymers, etc. can be added (col. 4, line 44 to col. 5, line 42). The composition can have notched Izod impact resistance and flame retardance as described in Examples. Inorganic phosphates and/or titanium oxide can be used (col. 7, lines 6-15).

Shaw is silent on the weight average molecular weight of the polyamide. However, Shaw teaches that a polyamide is blended with a polyphenylene ether in order to increase heat deflection properties. It is further noted that the molecular weight of a polymer is closely related

to the heat deflection properties thereof. For example, Krevellen teaches that the heat distortion property of an amorphous polymer depends on its glass transition temperature and that of a highly crystalline polymer depends on its melting temperature (page 524). A polyamide can have amorphous phase and/or crystalline phase depending on the types of the precursors used, e.g., precursors containing more aromatic moieties will yield a polyamide with more crystallinity. In any event, the melting temperature and the glass transition temperature of a polymer are affected by the molecular weight of the polymer as taught by Bueche in Equation 5.4 and Equation 13.4, respectively. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a polyamide with whatever weight average molecular weight through routine experimentation in order to obtain a polyphenylene ether composition with proper heat deflection properties. Especially, Applicants do not show the criticality of using a polyamide with the specific molecular weight recited in the present invention.

3. Claims 1-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aycock (US 4 600 741) as evidenced by Krevellen and Bueche in view of Shaw.

Aycock discloses a polyphenylene ether-polyamide composition comprising components a) to c). (col. 2, line 38 to col. 3, line 39 and Examples). Alternatively, component c) can be pre-reacted with either a) or b). For example, component c) can be prereacted with component a) to form PPE-TAAC (col. 3, lines 32-39) that can be further reacted with the polyamide (col. 7, line 23 to col. 8, line 2). The composition can have notched Izod impact resistance as described in Examples. Since the composition is substantially the same as that of Applicant's, both compositions should have similar flame retardance properties. A triblock copolymer can be used

as an impact modifier (col. 10, lines 3-27). The polyamides used can be aliphatic polyamides such as polyamide 6, etc. (col. 6, line 19 to col. 7, line 22). The polyphenylene ether used can be the ones described in col. 3, line 41 to col. 6, line 19.

Aycock is silent on the weight average molecular weight of the polyamide. However, Shaw teaches that a polyamide is blended with a polyphenylene ether in order to increase heat deflection properties, supra. It is further noted that the molecular weight of a polymer is closely related to the heat deflection properties thereof, supra. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a polyamide with whatever weight average molecular weight through routine experimentation in order to obtain a polyphenylene ether composition with proper heat deflection properties. Especially, Applicants do not show the criticality of using a polyamide with the specific molecular weight recited in the present invention.

Aycock further teaches the use of flame retardants and mineral fillers (col. 11 lines 41-46). Aycock is silent on the specific flame retardants and mineral fillers used. However, Shaw teaches the use of a flame retardants comprising a polysiloxane and a boron compound and a mineral filler of Titanium oxide (col. 5, line 43 to col. 7, line 15). Note that Aycock's disclosure is in the same field as that of the Shaw's endeavor. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Shaw's flame retardants and mineral fillers into Aycock's composition with expected success.

4. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aycock as evidenced by Krevellen and Bueche in view of Shaw as applied to claims 19-30 above, and further in view of Chambers (US 5 000 897).

Aycock in view of Shaw discloses a polyphenylene ether-polyamide composition wherein the polyphenylene ether can be chemically bonded with the polyamide, supra, which is incorporated herein by reference.

Aycock is silent on the use of citric acid. Chambers teaches the use of citric acid as a compatibilizer in a polyphenylene ether-polyamide composition (col. 5, lines 4-21). Note that Aycock in view of Shaw's disclosure is in the same field as that of the Chambers' endeavor. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate Chamber's citric acid into Aycock in view of Shaw's composition with expected success.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang Peng whose telephone number is (571) 272-1091. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

klp
March 30, 2004

Kuo-Liang Peng
Primary Examiner
Art Unit 1712